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FROM CERAM, INDONESIA (DIPTERA: CULICIDAE)**

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**A NEW SPECIES OF CULEX, SUBGENUS CULICIOMYIA THEOBALD
FROM CERAM, INDONESIA (DIPTERA: CULICIDAE)¹**

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ABSTRACT—The female, male, pupa, and fourth instar larva of *Culex* (*Culiciomyia*) *ceramensis* n. sp. from Ceram, Indonesia are described. The main diagnostic features of this new species are summarized and its relationship with the other known forms in the Oriental and Australasian regions is discussed.

The following description of all stages of *Culex* (*Culiciomyia*) *ceramensis* n. sp. is based on specimens collected by the junior author during a general field survey of the mosquitoes of Ceram during March, 1972. This species is apparently closely related to *C. papuensis* (Taylor) from the Australasian region and *C. pallidothorax* Theobald from the Oriental region but is distinct from both in several details of the male terminalia and in certain larval features as described below.

The holotype and allotype will be deposited in the U.S. National Museum (USNM), Washington, D.C. The paratypes will be deposited in the Department of Entomology, National Science Museum, Tokyo, Japan, and in the collection of Southeast Asia Mosquito Project (SEAMP), Smithsonian Institution, Washington, D.C., U.S.A.

Culex (*Culiciomyia*) *ceramensis*, new species

fig. 1–6, larva; 7–10, ♂ genitalia

Female: Wing 3.8–4.0 mm, fore femur 2.3 mm, proboscis 2.2 mm, palpus 0.4 mm, abdomen 3.0 mm. Medium to large in size, very dark to nearly black species; abdominal terga without basal transverse white bands. *Head*. Decumbent scales on dorsal surface of vertex predominantly broad and dark; narrow decumbent scales yellowish brown, very sparse, restricted to dorsal midline in center and occiput; all erect forked scales entirely black; lateral part of vertex with distinct bluish-white patch of broad appressed scales; palpus and proboscis dark scaled; palpus about 0.25 of proboscis length. *Thorax*. Integument of scutum and scutellum dark brown to black; scutal and scutellar scales numerous, fine, dark brown to black; integument of pronotum and paratergite same color as scutum; pleural integument paler except for *ppl*, *psp*, upper and lower *stp* which are as

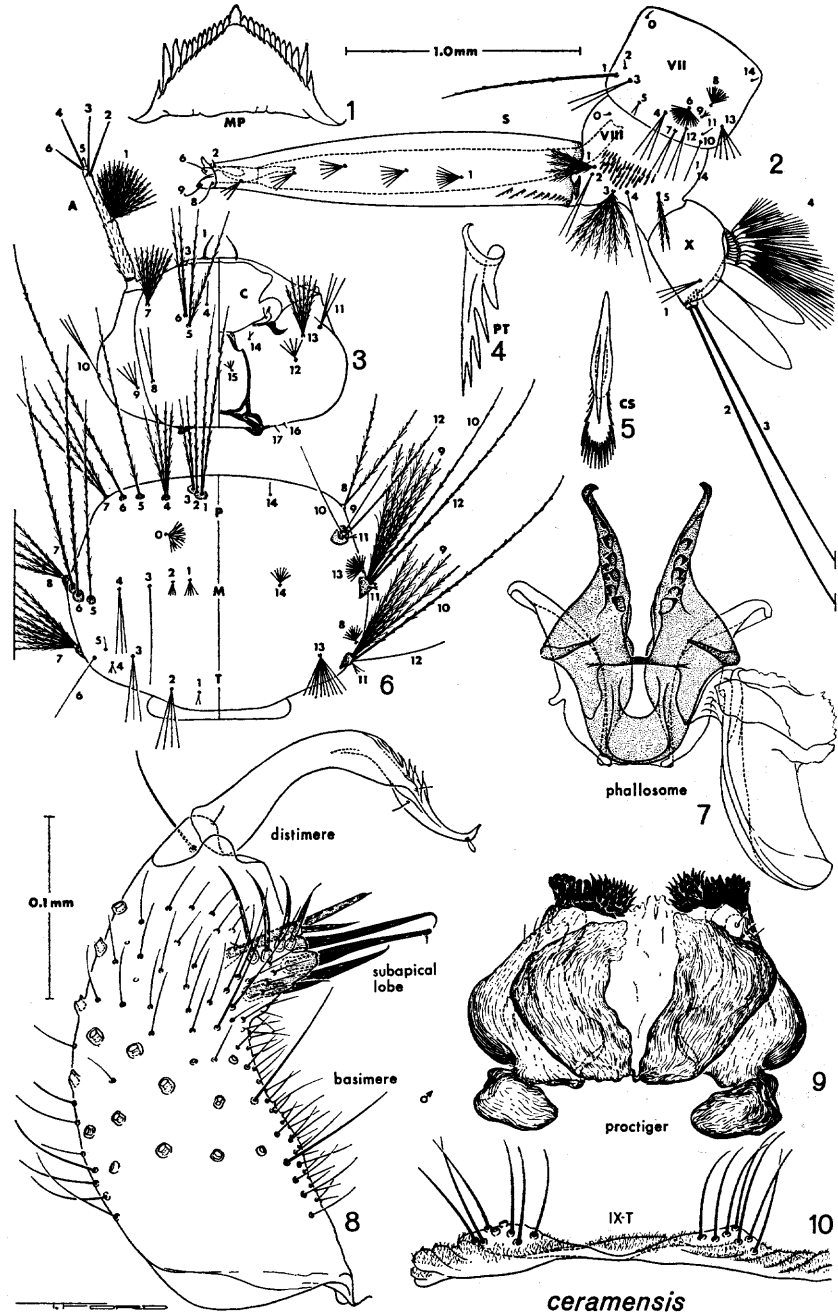
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dark as scutum; 1 lower mesepimeral bristle present, sometimes 2. *Legs*. Fore and mid femora dark scaled anteriorly and dorsally, white scaled ventrally; anterior surface of hind femur with white stripe extending from base to 0.5–0.75 of length; all tibiae and tarsi dark scaled. *Wing*. All scales narrow, dark and moderately to very dense on all veins. *Abdomen*. Terga completely dark to black scaled; sterna pale yellowish scaled.

Male: In general as described for female, differing slightly in smaller size and in the following sexual characters: *Head*. Palpus longer than proboscis by about length of segment 5; segment 3 with lateral ventral row of 5–6 transparent lanceolate scales on distal $\frac{1}{2}$, apex with 2–3 dark bristles laterally; segments 4 and 5 weakly plumose, bristles and hairs rather sparse; flagellar whorls of antennae densely plumose. Terminalia (fig. 7–10). Tergal lobe of segment IX small, with 1–2 irregular rows of 6–8 moderately strong setae; subapical lobe of basimere without sterno-apical spiculate lobe, proximal division with 2 lateral and 1 mesal rodlike setae, followed distally by 1 strong spinelike seta and laterally by a row of 3–4 flattened bristlelike setae, none of which is foliate; sternal mesal portion with small lobe bearing 1 long bladellike seta; distimere with dorsal subapical crest of 4–5 strong spinelike spicules and a very small ventral and dorsal seta; subapical claw short and small; aedeagus of phallosome vaselike, lateral plate broad proximally, tapered distally to a point, its inner tergal surface with 1 large basal denticle followed distally by 2 rows of 4–5 strong and 4 weak denticles; proctiger crown large and dark, composed of about 10 flat and blunt spicules laterally and dense tuft of several fine, pointed spicules internally; paraproct broad, without basal sternal process; cercal sclerite broad, well sclerotized; 3–4 tiny cercal setae present.

Pupa: Abdomen 3.0–3.5 mm, paddle 0.75–0.78 mm, trumpet 0.53–0.7 mm, index about 7. Integument of cephalothorax pale yellowish or whitish except for dark area along posterior mid-dorsal ridge and middle part of metanotum; trumpet with oblique pinna; meatus narrow at extreme base, more or less cylindrical distally; abdominal terga of segments I–IV dark in middle, pale laterally; other abdominal segments entirely pale. *Cephalothorax*. Hair 8-C usually double (2–3); 9-C usually single (1–2); 10-C 3–4b; 11-C double; 12-C 3–4b. *Abdomen*. Hair 1–III–VII double or triple; 5–IV, V double or triple, 1–1.5 times as long as segment following; 5–VI single, about twice as long as segment following; 6–III–VI all single, rarely double. *Paddle*. Broad, semispherical in shape and very pale; external margin distinct except apically; midrib weak and lightly pigmented; apical hairs 1, 2-P present, minute.

Larva (fig. 1–6): Head 0.75 mm, siphon 1.7 mm, index about 5. *Head*. Antennal shaft entirely pale, with several weak spicules; head hair 1-C fine, filiform; 5, 6-C double; 7-C 7–8b. *Thorax*. Without distinct spicules; prothoracic hair 1-P single or double; 2-P single; 3-P 2, 3b; 4-P 3, 4b; 7-P 2, 3b; 8-P double. *Abdomen*. Spiculation absent; hairs 6–I, II usually triple, sometimes 4b; 6–III single and very long; 6–IV, V shorter, double; 6–VI single, as long as 6–III; 1–IV–VI single and very long, about the same magnitude as 6–III or 6–VI; about 40 comb scales, all similar in size and each with rounded apical fringe of fine spicules. *Siphon*. More or less elliptical in shape, middle part swollen, basal and distal parts narrowed; basal 0.4 with a close-set row of 10–12 pecten teeth; siphonal hairs 10 in number, all weak, 4–6b each, irregularly paired, inserted more or less laterally. *Anal segment*. Ventral brush with 5 pairs of hairs (total 10); anal papillae tubular, with blunt apices, slightly longer than saddle.



Type Data: Holotype: male (110) with slide of terminalia (SEAMP 72/855); allotype: female (110-03) with associated pupal and larval skins, decayed sago trunk lying on the ground, Piru, *Ceram*, *Maluku* Province, INDONESIA, 10 March 1972, T. Kurihara; deposited in USNM. Paratypes: 1 male (110) with terminalia slide (SEAMP 72/856); 2 females (110); 4 pupal skins; 4 larvae, 1 larval skin, all in collection No. 110, deposited in SEAMP; 3 males (110-06, 07, 08) with associated pupal and larval skins and terminalia slides; 1 female (110-04), 3 females (110), same data as holotype, deposited in Dept. Entomology, National Science Museum, Tokyo, Japan.

Distribution: Material examined: 6 males, 7 females, 4 pupae, 5 larvae; 4 individual larval rearings, 9 from mass rearing. Known only from Piru and Hatnulu, *Ceram*, *Maluku* Province, INDONESIA.

Taxonomic Discussion: *Culex ceramensis* is most closely related to *C. papuensis* (Taylor), which is dominant and widely distributed in the Oriental region (Delfinado 1966, Bram 1967), in the Papuan part of the Australasian region (King and Hoogstraal 1946), and in the South Pacific (Belkin 1962), and to *C. pallidothorax* Theobald from the Oriental region (Delfinado 1966, Bram 1967). Adults of *ceramensis* are exceedingly similar to *papuensis* in lacking basal transverse pale bands on the abdominal terga, and, as in the latter species, *ceramensis* can be readily separated from *pallidothorax* by this negative feature. In external sexual characters of the male, *ceramensis* is distinguished from *papuensis* by the fewer transparent lanceolate scales in the distal $\frac{1}{2}$ of palpal segment 3 and by the fewer bristles on palpal segments 4 and 5. The male terminalia differ from *papuensis* and *pallidothorax* strikingly in the following features: (1) absence of sterno-apical spiculate lobe and reduction in number of setae on subapical lobe of basimere and, (2) absence of basal sternal process of the paraproct of the proctiger. The pupae cannot be separated with certainty. The larva resembles the other 2 forms in the shape of the siphon, but is readily separated by the following combination: (1) filiform head hair 1-C; (2) double branched head hairs 5 and 6-C; (3) prothoracic hair 4-P 3-4 branched; (4) more slender and longer siphon and presence of more pecten teeth which extend from extreme base to about 0.25 of total length and (5) ventral brush (4-X) of saddle with 5 pairs of hairs.

This species, with *papuensis* (Taylor), *pallidothorax* Theobald, and

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Fig. 1-10, *Culex (Culiciomyia) ceramensis* n. sp. Larva: 1, mental plate (MP); 2, terminal segments; 3, head; 4, pecten tooth (PT); 5, comb scales (CS); 6, thorax. Male terminalia: 7, phallosome; 8, basimere and distimere; 9, proctiger; 10, lobes of ninth tergum.

barrinus Bram (1967), apparently falls into a distinct complex of closely related forms within the subgenus *Culiciomyia*.

Biology: The adults of *C. ceramensis* were obtained from individual and mass rearings from several larvae and pupae collected from a decayed sago trunk lying on the ground. On another occasion, immatures were collected from a hole in the ground in association with specimens of *C. (Lutzia) halifaxii* Theobald. The biology of the adults is unknown.

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REFERENCES

- Belkin, J. N. 1962. The mosquitoes of the South Pacific. Univ. Calif. Press, 2 vols., 608 and 412 pp.
- Bram, R. A. 1967. Contribution to the mosquito fauna of Southeast Asia. II. The genus *Culex* in Thailand (Diptera, Culicidae). Contrib. Amer. Entomol. Inst. 2(1):1-296.
- Delfinado, M. D. 1966. The culicine mosquitoes of the Philippines, Tribe Culicini (Diptera, Culicidae). Mem. Amer. Entomol. Inst. 7:1-252.
- King, W. V. and H. Hoogstraal. 1946. The New Guinea species of *Culex* (*Culiciomyia*), with descriptions of two new species. Proc. Biol. Soc. Wash. 59:143-154.